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the Cincinnati Society of Natural History, Oct., 1879. Cincinnati, 1881. From the author.

The Foundation of American Dermatology; being the President's address at fourth annual meeting of the American Dermatological Association held at Newport, R. I., August 31, 1881. By Louis A. Duhring, M.D. 8vo, pp.30. Ext. from the Transactions of the Association. Philadelphia, 1881. From the author.

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GENERAL NOTES.

BOTANY.¹

BOTANY IN MINNESOTA.—The University of Minnesota opened, during July, a Summer School of Science, in which instruction by lectures and laboratory practice was furnished in chemistry (Professor Dodge), geology (Professor Hall), and botany (Professor Bessey). About forty teachers enrolled themselves for the courses. The botanical laboratory, supplied with twenty-five microscopes, was open from 9 A.M. to 5 P.M., excepting the lecture hour, from 11 to 12 o'clock. The Mississippi river, above and below the falls of St. Anthony, and the long cañon, with its high cliffs, extending from the falls to Fort Snelling, together with the innumerable lakes in the vicinity of Minneapolis, supplied an abundance of material for study. The cooler climate of Minnesota made work possible even in the heated term of this ever-to-be-remembered July. The laboratory course may be given in outline as follows: I. *General Histology of Plants.*—Protoplasm in hairs and tissues, cells, cell walls and their markings, chlorophyll, starch, plant crystals, parenchyma, collenchyma, sclerenchyma, fibrous tissue, laticiferous tissue, sieve tissue, tracheary tissue, epidermis, stomata, hairs, fibro-vascular bundles. II. *The Structure and Physiology of Cryptogams.*—(1) The Sexless Plants (Protophyta) Protococcus, Nostoc, Oscillatoria, Rivularia, yeast plant, Bacteria; (2) The Unisexual Plants (Zygosporeæ), Hydrodictyon, Conferva, Desmids, Diatoms, Spirogyra, Mucor; (3) The Egg-spore Plants (Oösporeæ), CEdogonium, Vaucheria, Peronosporæ, Cystopus, Fucus; (4) The Red Seaweeds and their allies (Carposporeæ), Podosphæra, Eurotium, Parmelia, Puccinia, Agaricus; (5) The Mosses and their allies (Bryophyta), Marchantia, Mnium; (6) The Ferns and their allies (Pteridophyta), fern prothallia, and fruiting, Pteris, Polypodium, Selaginella. III. *The Structure and Physiology of Phanerogams.*—The structure of Gymnosperms; the sexual reproduction of Monocotyledons; the sexual reproduction of Dicotyledons.

THE STUDY OF ALGÆ IN THE UNITED STATES.—About nine years ago Dr. H. C. Wood, of Philadelphia, published his now well known "Contribution to the history of the fresh water Algæ of North America," which made it possible for the student to begin the systematic study of our fresh water species. Within

¹ Edited by PROF. C. E. BESSEY, Ames, Iowa.

two or three years, Dr. Allen and Dr. Halsted have pretty well worked up our Characeæ (which we must regard as Algæ, in the face of the fact that algologists regard them as falling within the jurisdiction of the bryologists). It is a pleasure now to notice the important contribution made by Dr. Farlow, whose "Marine Algæ of New England and the adjacent coast," appeared early in July. It is reprinted from the belated "Report of the U. S. Fish Commission for 1879," and consists of 200 pages of text, accompanied by fifteen plates. The author has been connected with the Fish Commission for many years, and has thus had most excellent opportunities for studying the Algæ of our North Atlantic coast. How well he has improved those advantages even a casual examination of this valuable book will show. It is designed to be used as a hand-book for the classification of the species (excepting the Diatoms) of our coast from New Jersey northward, and it is not too much to say that the author has been entirely successful in making a book which every sea-coast visitor with botanical inclinations will find indispensable.

In his introduction Dr. Farlow discusses some peculiarities in the distribution of our Algæ which are interesting, as follows: "It will be seen that Cape Cod is the dividing line between a marked northern and a southern flora. In fact, the difference between the floræ of Massachusetts bay and Buzzard's bay, which are only a few miles apart, is greater than the difference between those of Massachusetts bay and the Bay of Fundy, or between Nantucket and Norfolk. This difference in the flora corresponds precisely with what is known of the fauna. That Cape Cod formed a dividing line was known to Harvey, and subsequent observation has only shown, on the one hand, that the flora north of Cape Cod is more decidedly Arctic than he supposed, and that, on the other hand, south of the cape it is more decidedly that of warm seas. The general fact of the distinctness of the two floræ is not weakened by the knowledge that we now possess, owing to the investigations of the Fish Commission, of the existence in a few sheltered localities north of Cape Cod, of some of the characteristic species of Long Island sound, and in a few exposed spots south of the cape, of northern species." Further on, in speaking of the characteristic species between Boston and Eastport, he says: "In studying these we must turn not to the works on the Algæ of France or Great Britain, but rather to those on Scandinavian Algæ. It is especially instructive to examine the Algæ Scandinavicæ, by Professor Areschoug, in connection with our own forms. The resemblance is at once striking." South of Cape Cod the Florideæ are characteristic, and here West Indian and even Adriatic forms appear.

The general classification is as given below, beginning as is happily becoming the custom, with the simpler forms and passing to the higher. Order 1. *Cryptophyceæ*, nearly equivalent to Cy-

anophyceæ or Phycochromaceæ, and containing the sub-orders Chroococcaceæ and Nostochineæ. Order II. *Zoosporeæ*, with the sub-orders Chlorosporeæ, Bryopsidæ, Botrydiæ, Phæosporeæ. Order III. *Oosporeæ*, with sub-orders Vaucherieæ and Fucaceæ. Order IV. *Florideæ*, including sub-orders Porphyreæ, Squamariæ, Nemaliæ, Spermothamniæ, Ceramiæ, Spyridiæ, Cryptonemiceæ, Dumontieæ, Gigartineæ, Rhodymenieæ, Spongiocarpeæ, Gelidiæ, Hypnæ, Solierieæ, Sphærococcoideæ, Rhodomeleæ, Corallineæ.

THE LITERATURE OF BOTANY.—Mr. B. D. Jackson's "Guide to the Literature of Botany" (Longmans, Green & Co., and Dulau & Co., London), will prove indispensable to the working botanist. It is not simply a list of all the botanical publications, but a selected and classified list, so that when one consults it he is not obliged to hunt through a great mass of less important matter. The selections have been quite well made, and as the book contains 6000 titles not found in Pritzel's "Thesaurus" (not 6000 *more*, as we thought from the prospectus and so noted in the June "Notes") it should at once find a place upon the shelves of every botanist's library. The general appearance of the book, which contains over six hundred small quarto pages, is good, and the typographical errors are, considering the nature of the work, remarkably rare.

A HINT TO MICROSCOPISTS.—The editor of this department, since the publication of his "Botany for High Schools and Colleges," has been in receipt of numerous inquiries from teachers and others, who, for want of time or the necessary training, are unable to prepare illustrative specimens for study or demonstration. It is, of course, true that it is far better to study fresh material, and the teacher who can direct his pupils how to collect and prepare their own specimens is doing the best work. But the fact remains that for a very great number it is impossible for them, with their thousand and one other duties, to take upon themselves the additional labor required to supply, at the proper time, the proper illustrative specimens. To meet the wants of such cases, and they are numerous, why cannot some of our microscopists put up sets of mounted slides, designed to show the more important structures, in a well selected list of illustrative plants. A set of twenty-four specimens, somewhat as follows, would be useful. *Protophyta*—(1) Protococcus, (2) yeast plant; *Zygosporæ*—(3) Hydrodictyon, (4) Diatoms, (5) Spirogyra, (6) Mucor; *Oosporæ*—(7) Volvox, (8) Vaucheria, (9) Peronospora, (10) Fucus; *Carposporeæ*—(11) a fruiting Red Alga, as Nematium, (12) Erysiphe, (13) a lichen, as Usnea, (14) *Puccinia graminis* in all its stages, (15) sections of mushroom, (16) Chara or Nitella; *Bryophyta*—(17) antheridia and archegonia of a moss, (18) spores and capsule (in section) of a moss; *Pteridophyta*—(19) prothallium of a fern, (20) spores and sporangia of a fern, (21) macro-

spores and microspores of *Selaginella*; *Phanerogamia*—(22) pollen, (23) young pistil (sections) and ovules, (24) seeds (sections) with embryo *in situ*. The specimens should, in some cases, be of considerable size, and in every case, where possible, the sexual reproductive organs should be clearly shown. The list might profitably be much enlarged, while a valuable half set costing much less might be made by selecting from the full set, say by taking Nos. 1, 2, 5, 8, 12, 16, 17, 19, 20, 22, 23, 24.

ERRATA.—Through some delinquency in the U. S. mails, the editor of this department failed to receive the proof of the August number in time to correct some typographical errors. On p. 653, third line, *Myxomycetes* appears spelled incorrectly; the second word in the fourth line should be "fine"; Professor Tuckerman's name appears without an r, for which we beg his pardon; further down Dr. Farlow is said to have described "a carpinus which grew in a jar of water"! which no doubt made many botanists stare with amazement. What we wrote was "coprinus," a very different thing indeed! The additions to the N. A. Flora made by Dr. Engelmann, were "some additions," not "Iowa additions."

A correction should also be made in Dr. Schimper's paper, p. 558, fifth line, where "less watery" should be "more watery."

BOTANICAL NOTES.—In the April number of the *Journal of the Linnean Society*, Francis Darwin publishes an interesting paper on "The theory of the growth of Cuttings." The other articles of this number are on the Vegetation of Chumba State and British Lahoul; Australian Fungi; New plants from the Cape of Good Hope; An *Erythræa* new to England; Revision of the genus *Vibrissea*. The June number of the same journal contains an article on the power possessed by leaves of placing themselves at right angles to the light, by Francis Darwin. It is illustrated by seventeen woodcuts, five of which are explanatory of the klinostat, or apparatus which he used in making his observations. This portion of the article is of especial value to those who wish to repeat or extend Mr. Darwin's observations. Papers on the coffee leaf disease, proliferous *Verbascum nigrum*, stipules in *Ilex Aquifolium*, and Right and Left hand contortions, complete the number. In the last mentioned article the writer, Mr. Clarke, uses some pretty vigorous English in discussing the vexed question of the direction of the spiral; for example: "I suppose myself to have shown, (1) That Linnæus's original definition of right hand twist is exceedingly good, and contains no surplusage; (2) That in observing contortions it makes no difference whether you imagine yourself within or without the spire, so long as you do not turn yourself round, or stand upon your head." All will agree with him "that it does not much matter which way it is settled, but that it is of the greatest importance to all botanic describers that it should be settled, definitely and finally, one way

or the other.—C. B. Clarke's paper in the July *Journal of Botany*, "Notes on Commelinaceæ," is very interesting as containing a summary of the order as it is to appear in the forthcoming volume of De Candolle's "Monographies." In the same journal, J. G. Baker catalogues the ferns collected by Kalbreyer in New Granada, and describes twenty-one new species.—J. B. Ellis, in the July *Torrey Bulletin*, describes eleven new species of Fungi from Utah, collected by M. E. Jones.—A notice of the Muhlenberg Herbarium, now in possession of the American Philosophical Society in Philadelphia, and a continuation of the List of the State and local floras of the United States, occur in the same number of the *Bulletin*.—Dr. Rothrock's paper on "Home and foreign methods of teaching Botany," in the July *Botanical Gazette*, is one which should be read by every teacher of botany in the country. It contains a strong plea for the study of plants rather than books. In the same number Dr. Engelmann describes several new species of plants, among them a suffrutescent *Portulaca*. C. H. Peck also describes some new Fungi from Utah.—C. F. Wheeler and E. F. Smith, of Hubbardston, Mich., have just issued a "Catalogue of the Phænogamous and vascular Cryptogamous plants of Michigan." It contains entries of 1634 species, of which 1559 are flowering plants. Valuable notes are appended to many of the species, and a good map of the State is added. The authors offer a limited number of copies of this valuable catalogue for sale at fifty cents each.—Dr. E. L. Sturtevant, well known for his many important contributions to economic botany, has just added another, "The growing of Indian Corn," a pamphlet of fifty pages, extracted from the Twenty-eight report of the Massachusetts State Board of Agriculture.

ZOÖLOGY.

A SHOWER OF CYCLOPS QUADRICORNIS.—I have just received (June 12) from C. L. Garretson, of Salem, Henry county, Iowa, a small vial containing about half a teaspoonful of water, accompanied by a note in which he says, "On the night of June 8, 1881, there was a heavy rain-fall, and on the morning of the 9th the ground was covered, in places, with something that looked like blood. I found that they were living creatures, and with a spoon took up a pint of the muddy water containing them."

Upon examining the sample received, I found it to be swarming with *Cyclops quadricornis*, or what I take to be that species. The only thing peculiar about them, is, that the body is full of bright red corpuscles, which accounts for their imparting a red appearance to the water containing them. A specimen of the same creature taken from a jar of water that has been standing in my office for several weeks, contains a few of these corpuscles, but not a hundredth part as many as are in the bodies of the rain-